AMENDMENTS TO THE CLAIMS

1-9. (Canceled)

10. (Previously Presented) A method of forming a stacked semiconductor device, comprising:

forming a layer of material on a portion of the top surface of a substrate, said substrate having an interconnect structure formed thereon;

selectively removing a portion of the layer of material to expose a portion of a top surface of the interconnect structure;

combining the substrate with another substrate to form a stacked semiconductor device;

causing a reaction in a portion of the layer of material wherein a portion of the area between the two substrates is filled with a polymer foam as a product of the reaction.

11. (Previously Presented) The method of claim 10, wherein the reaction comprises polymerization.

12. (Previously Presented) The method of claim 10, wherein said forming comprises spin coating.

13. (Previously Presented) The method of claim 12, wherein the layer of material is spin coated to a thickness greater than the top surface of the interconnect structure.

14. (Previously Presented) The method of claim 10, wherein the selective removing comprises one or more of: chemical etch, dry etch, or mechanical etch.

15. (Canceled)

16. (Previously Presented) The method of claim 10, wherein the layer material is selected from the group consisting of: water, hydroxyl end-capped oligomers, and carboxylic acid end-capped polymers.

17-29. (Canceled)

30. (Previously Presented) A method comprising:

depositing a first material between two substrates of a stacked device;

depositing a second material between the two substrates of the stacked device; and

filling a portion of an area between the two substrates with a polymer foam as a product of the reaction between the first material and the second material.

31. (Previously Presented) The method of claim 30, wherein depositing the first material comprises one of:

diffusing the first material into a portion of the area between the two substrates;

injecting the first material into the portion of the area between the two substrates;

spraying the first material into the portion of the area between the two substrates; or

immersing the two substrates in the first material.

32. (Previously Presented) The method of claim 30, wherein the first material is selected from the group consisting of diisocyanate monomers, a diisocyanate end-capped compliant oligomer, and p-toluenesulfonyl semicarbazide.

33. (Previously Presented) The method of claim 30 wherein depositing the second material comprises one of:

diffusing the second material into a portion of the area between the two substrates;

injecting the second material into the portion of the area between the two substrates;

spraying the second material into the portion of the area between the two substrates; or

immersing the two substrates in the second material.

34. (Previously Presented) The method of claim 30, wherein the second material is selected from the group consisting of water, a hydroxyl end-capped oligomer, and a carboxylic acid end-capped polymer.

35. (Previously Presented) A method comprising:

forming a layer of material on a substrate including an interconnect structure formed thereon;

removing a portion of the layer of material such that a top surface of the layer of material is lower than a top surface of the interconnect structure to expose the top surface of the interconnect structure;

combining the substrate with another substrate; and

filling an area between the two substrates with a polymer foam as a product of a reaction in the layer of material.

36. (Previously Presented) The method of claim 35, wherein the reaction in the layer of material comprises polymerization.

37. (Previously Presented) The method of claim 35, wherein forming the layer of material comprises forming the layer of material to a thickness greater than the top surface of the interconnect structure.

38. (Previously Presented) The method of claim 35, wherein the layer material is selected from the group consisting of water, hydroxyl end-capped oligomers, and carboxylic acid end-capped polymers.

39. (Previously Presented) A method of forming stacked wafers, comprising:

providing a first wafer having a first conductive interconnect structure and a first layer thereon, wherein at least a portion of the first conductive interconnect is exposed;

providing a second wafer having a second conductive interconnect structure and a second layer thereon, wherein at least a portion of the second conductive interconnect structure is exposed;

bonding the first conductive interconnect structure to the second conductive interconnect structure; and

chemically reacting the first layer with the second layer by introduction of one of a reactant, heat or a gas to form a foam filling in an area between the first and second wafers adjacent to the first and second conductive interconnect structures.

40. (Previously Presented) The method of claim 39, further comprising:

thinning at least one of the first and second wafers, said foam providing structural support to the stacked wafers during said thinning.

41. (Previously Presented) The method of claim 39, further comprising:

protecting the first and second interconnect structures from oxidation using said foam during a subsequent wafer process.

42. (New) A method comprising:

forming a layer of first material between two substrates of a stacked device; and

forming a layer of second material between the two substrates of the stacked device, wherein the second material causes a chemical reaction in a portion of the first material and wherein the reaction produces a polymer foam.

43. (New) A method comprising:

forming a layer of material between two substrates of a stacked device; and

exposing the layer to one of a temperature differential or a pressure differential, wherein the a chemical reaction results in the portion of the layer of material increasing in volume and wherein the reaction produces a polymer foam.